

HAWTHORNE DITCH
Lower Rapid Valley Irrigation Ditches
On the North Side of Rapid Creek
Rapid City Vicinity
Pennington County
South Dakota

HAER No. SD-6

HAER
SD
52-RAC1.V,
2-

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
Rocky Mountain Regional Office
National Park Service
P.O. Box 25287
Denver, Colorado 80225-0287

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I. INTRODUCTION

Location: The Hawthorne Ditch is located on the north side of Rapid Creek in Pennington County, South Dakota, in the vicinity of Rapid City

Quad: Rapid City East and Box Elder

UTM: Zone 13
Diversión: 645660 E, 4881630 N
Terminus: 653820 E, 4878190 N

Date of Construction: c. 1886, 1906

Present Owner: Hawthorne Ditch Company
c/o Helena Erickson
Route 5 Box 620
Rapid City, South Dakota 57701

Present Use: Irrigation

Significance: The Hawthorne Ditch is significant for its association with the development of irrigated agriculture in South Dakota. The ditch is a representative example of irrigation systems constructed, maintained, and operated by farmers.

Historian: Lon Johnson
Renewable Technologies, Inc.
Butte, Montana 59701
February 1994

II. HISTORY

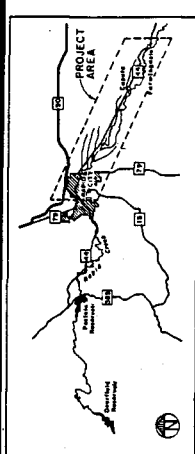
The Hawthorne Ditch is located in the Lower Rapid Valley, just east of Rapid City, South Dakota. (See map on page 3.) The ditch diverts water from Rapid Creek, a major tributary of the Cheyenne River, which flows through the valley. The valley is about 40 miles long, and from one to two miles wide. By 1878, farmers occupied the valley floor from Rapid City east for a distance of ten miles. These farmers, individually and in groups, began digging irrigation ditches from Rapid Creek to bring water to their crops. Over the next decade, most of the ditches became part of farmer-owned ditch corporations. The stockholders of these corporations worked together to expand, operate, and maintain the ditches. Of the 12 or so ditch companies that have operated in the Lower Rapid Valley, seven continue to provide water to about 9,000 acres. (See HAER No. SD-5 for a historical narrative of the Lower Rapid Valley irrigation ditches.) The Hawthorne Ditch Company operates one of the largest of these ditches.

The Hawthorne Ditch Company filed articles of incorporation on July 14, 1890. The corporation issued \$5,000 in capital stock--50 shares with a par value of \$100 each. The original directors were George Hunt, John P. McElroy, James H. Woods, John C. Reed, and Mat D. Ward.¹ One week before organizing the corporation, Hunt, McElroy, and Woods claimed 3000 miner's inches of water from Rapid Creek.² Hunt and McElroy, along with a John Brennan, had claimed 2000 miner's inches to Rapid Creek at the same location in 1886.³

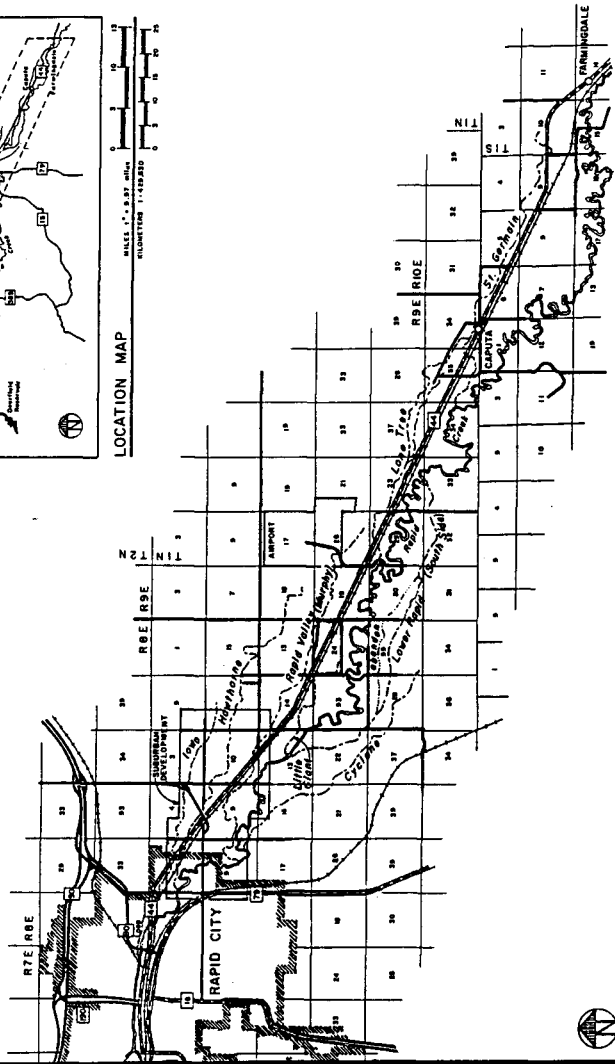
In the summer of 1880, a correspondent for the *Black Hills Journal* visited several farms in the Lower Rapid Valley. Among "Our Neighbors" described in a series of articles were three settlers later involved with the Hawthorne Ditch Company.

George Hunt moved from Casey, Iowa, to the Rapid Valley in June 1877. He had claimed 160 acres of bench land as a homestead and 40 acres under the Timber Culture Act. Hunt had 200 acres planted to oats, barley, potatoes, corn, wheat, and hay. He had constructed a 1½-story frame house and four "substantial barns and sheds." The newspaper correspondent noted that Hunt could easily irrigate a portion of his lands from the "Rapid River ditch."⁴

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LOCATION MAP
MILES 1" = 0.25 MILES
KILOMETERS 1" = 0.25 KILOMETERS



PROJECT AREA MAP
MILES 1" = 1 MILE
KILOMETERS 1" = 0.625 KILOMETERS

John P. McElroy moved to the Rapid Valley from Rockford, Iowa in March 1879. He settled on 120 acres of bottom land which he had planted to oats, barley, corn, and hay. McElroy also had several acres of truck garden producing hubbard squash, citrons and watermelons, sweet potatoes, carrots, parsnips, turnips, onions, peas, and lima beans. The farm was irrigated by the Lewis ditch "which is used for irrigation purposes by the farmers in that vicinity."⁵

John C. Reed moved to the Rapid Valley from Fairfield, Iowa in March 1879. His homestead consisted of 90 acres of bottom land and 70 acres of bench land. By 1880, most of his land was under cultivation. He had planted oats, wheat, corn, potatoes, and garden vegetables. Reed was also experimenting with fruit trees and grapes. The newspaper correspondent noted that the "Lewis ditch passes across this land."⁶

These accounts suggest that the possible beginnings of the Hawthorne Ditch date at least ten years before incorporation of the ditch company. No documentation, however, has been found linking the Lewis and Hawthorne ditches.

In 1910, the South Dakota Secretary of State granted the Hawthorne Ditch Company a 20-year extension of its charter. At that time, four individuals owned the company's 50 shares of stock.⁷ The company valued its dam, ditches, rights-of-way, water rights, and a power and mill site at \$15,000. The Secretary of State granted the company extensions of its corporate existence again in 1930 and 1950. Each time, the corporation valued its assets at \$50,000.⁸

The *Second Biennial Report of the State Engineer for the Years 1907-1908* included a description of the Hawthorne Ditch along with four other irrigation systems. The State Engineer characterized the ditch as being "operated on the community plan, the stockholders being owners of land under it." The ditch, "including a proposed extension," was 8.5 miles long with a capacity of 30-second feet of water. The Hawthorne Ditch served 2,022 irrigable acres.⁹ The *Third Biennial Report* repeated much of the same information, but revised the irrigable land under the ditch to 1,028 acres. It also noted that the water supply was "barely sufficient," especially when ditch companies with senior water rights were exercising their priority appropriations to the waters of Rapid Creek.¹⁰

In 1937, the Bureau of Reclamation found that 2,335 irrigable acres could be served by the Hawthorne Ditch, although water shortages limited the actual acres irrigated to about one-half that number.¹¹ In 1989, the Hawthorne Ditch provided water to 1,014 acres.¹²

III. PHYSICAL DESCRIPTION

The Hawthorne Ditch originates just to the east of the corporate limits of Rapid City. The first half of the ditch runs through urban development and residential subdivisions.

The Hawthorne Ditch Company's headworks are the only remaining historic headwork structures identified in the Lower Rapid Valley. They consist of a diversion dam placed across the main channel of Rapid Creek. The dam is constructed of boulders protected with a concrete facing. The dam diverts water into an intake canal. A concrete-walled spillway, approximately 15 feet wide, is located near the beginning of the canal. The intake canal is 55 feet long, and is cut into slightly sloping terrain which creates a natural bank for most of the length of the north side; the last 20 feet are lined with a 10-inch wide concrete wall. The south side is lined with two concrete walls, one 10 inches wide and one 8 inches wide, placed side-by-side for its entire length--one apparently older than the other.

The headgate structure is a concrete wall placed across the canal. The wall measures 19'-7" and is 2'-0" thick. The last four feet at each end flares to 3'-0" wide. The downstream face of the concrete headgate structure has a low arch 3'-6" below the top of the structure and spanning 10 feet. Incised in the concrete above the arch is the lettering: HAWTHORNE DITCH, ESTABLISHED JULY 10, 1886.

The upstream face has a canal gate consisting of a round gate in an angle iron frame. The gate is raised and lowered in the frame by a threaded stem and cast iron handwheel. Evidence in the concrete and the placement of the canal gate to one side indicates that another gate existed at one time. Incised in the concrete is the date 1906.

The Hawthorne Ditch is 9.63 miles long. It flows on the north side of Rapid Creek and ends just west of the Rapid City Regional Airport. It has a one-bank, side-hill cross section, meaning a cut was made in the sloping ground surface and

the excavated dirt thrown to the downhill side, creating a berm. The canal is typically 8 feet wide at the bottom with a minimum depth of 2 feet.

The diversion canal takes water from Rapid Creek at about 3165 feet in elevation. The ditch then heads in a westerly direction across the Rapid Valley floor to the side of a low bench where it turns in a southeasterly direction between the 3150 and 3160 contours through Sections 4, 9, and 10, T1N, R8E. In the middle of Section 10, the ditch drops below the 3150 contour passing through Sections 11 and 12. At the line between Sections 12 and 13, it drops another ten feet. The ditch then returns to the north along this contour around a gully and passes through the northeast corner of Section 13. The Hawthorne Ditch terminates in the middle of the south half of Section 18, T1N, R9E at an elevation of approximately 3120 feet. A natural drainage at the termination is used as a wasteway to return water to Rapid Creek.

IV. FUTURE OF THE PROPERTY

The United States Department of Agriculture Water Quality Hydrologic Unit Area, Lower Rapid Creek Project, in Pennington County, South Dakota, was approved for funding by the Secretary of Agriculture in December of 1990. As part of this project, plans have been prepared to modify the Hawthorne Ditch to control seepage and incorporate storm water drainage.¹³

See HAER No. SD-5 for a full description of the undertaking.

V. ENDNOTES

1. South Dakota Secretary of State, "Articles of Incorporation of the Hawthorne Ditch Company," filed July 30, 1890, File No. DB-9270
2. Pennington County Register of Deeds, "Location Certificate Book G," 8 July 1890, 584.
3. Pennington County Register of Deeds, "Location Record Book E," 13 July 1886, 572.
4. *Black Hills Journal*, 24 July 1880.
5. Ibid.
6. Ibid.
7. South Dakota Secretary of State, Hawthorne Ditch Company, Letter to the Honorable Samuel C. Polley as Secretary of State, 7 July 1910, File No. DB-9270. The letter lists Wilson Marsh with 30 shares, Herbert N. Johnson with 7 shares, Sarah J. Murphy with 9 shares, and Joseph Jay with 4 shares.
8. South Dakota Secretary of State, Hawthorne Ditch Company, Letter to the Honorable Gladys Pyle as Secretary of State, 23 July 1930; South Dakota Secretary of State, "Application for Extension of Corporate Existence of The Hawthorne Ditch Company," 5 June 1950; File No. DB-9270.
9. South Dakota State Engineer, *Second Biennial Report of the State Engineer to the Governor of South Dakota for the Years 1907-1908* (Pierre: State Publishing Company, [1909]), 62.
10. South Dakota State Engineer, *Third Biennial Report of the State Engineer to the Governor of South Dakota for the Years 1909-1910* (Aberdeen, S.D.: News Printing Company, [1911]), 73-74.
11. U.S. Department of the Interior, Bureau of Reclamation, "Report on Rapid Valley Irrigation Project South Dakota," November 1937, 40. Copy in Library, Bureau of Reclamation, Newell, South Dakota.

12. U.S. Department of the Interior, Bureau of Reclamation, "Rapid Valley Water Management Study Appendix," Appendix J, July 1990. Copy in Soil Conservation Service office, Rapid City, South Dakota.

13. U.S. Department of Agriculture, Soil Conservation Service, "Preliminary Design Report, Hawthorne Ditch, Pennington County, South Dakota," May 1992. Copy in Soil Conservation Service office, Rapid City, South Dakota.

VI. SELECTED BIBLIOGRAPHIC CITATIONS

Black Hills Journal.

Pennington County Register of Deeds. "Location Certificate Book G."

_____. "Location Record Book E."

South Dakota Secretary of State. "Application for Extension of Corporate Existence of The Hawthorne Ditch Company." 5 June 1950. File No. DB-9270.

_____. "Articles of Incorporation of the Iowa Irrigation Ditch Company," filed 5 October 1890. File No. DB-6877.

_____. Hawthorne Ditch Company. Letter to the Honorable Samuel C. Polley as Secretary of State, 7 July 1910. File No. DB-9270.

_____. Hawthorne Ditch Company. Letter to the Honorable Gladys Pyle as Secretary of State, 23 July 1930. File No. DB-9270.

South Dakota State Engineer. *Second Biennial Report of the State Engineer to the Governor of South Dakota for the Years 1907-1908*. Pierre: State Publishing Company, [1909].

_____. *Third Biennial Report of the State Engineer to the Governor of South Dakota for the Years 1909-1910*. Aberdeen, S.D.: News Printing Company, [1911].

U.S. Department of Agriculture. Soil Conservation Service. "Preliminary Design Report, Hawthorne Ditch, Pennington County, South Dakota." May 1992. Copy in Soil Conservation Service office, Rapid City, South Dakota.

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_____. "Report on Rapid Valley Irrigation Project South Dakota."
November 1937. Copy in Library, Bureau of Reclamation, Newell,
South Dakota.